NHDOT SPR2 PROGRAM
RESEARCH PROGRESS REPORT

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a progress report at least every three months during the project duration. Reports are due the 5th of the month following the end of the quarter. Please provide a project update even if no work was done during this reporting period.

Project # *26962S*		**Report Period** Year *2017* ☐Q1 (Jan-Mar) ☐Q2 (Apr-Jun) ☒Q3 (Jul-Sep) ☐Q4 (Oct-Dec)
Project Title: *Assessing lower impulse load levels on reinforced asphalt pavement*		
Project Investigator: *Lynette Barna* **Phone: 603-646-4503**		**E-mail: Lynette.A.Barna@usace.army.mil**
Project Start Date: *03 January 2017*[a] *30 November 2016*	**Project End Date:** *03 January 2018*	**Project schedule status:** ☒On schedule ☐ Ahead of schedule ☐ Behind schedule *Check appropriate box*

[a.] **Project start date per Cooperative Research and Development Agreement (CRADA)**

Brief Project Description:

NHDOT installed fiberglass grid reinforcement in several flexible roadways throughout the state in an effort to address fatigue cracking and extend the service life. Coefficient values for fiberglass reinforced asphalt pavement are needed for design. Data collected during the fall of 2014 from impulse load testing at three test sections representing the thin asphalt layer will be analyzed to determine coefficient values for design. The field data was collected on NH Route 101 using Falling Weight Deflectometer [FWD] and Lightweight Deflectometer [LWD] pavement testing equipment. The data analysis will evaluate the FWD deflection measurements at the lower load levels and the LWD data to determine the possible benefit of reinforcing grid in the asphalt layer.

Progress this Quarter (include meetings, installations, equipment purchases, significant progress, etc.):

- Field data from the three test sections were backcalculated with a layered elastic procedure, for a multi-layered system, to determine the modulus values at the lower load levels. The lower load levels include 6 to 12 kips applied during the field testing on the thin asphalt test sections. The layered elastic program was developed by the Pavement-Transportation Computer Assisted Structural Engineering (PCASE). The software program is used for the design and evaluation of transportation infrastructure.

Items needed from NHDOT (i.e., Concurrence, Sub-contract, Assignments, Samples, Testing, etc…):

NTR

Anticipated research next three (3) months:

Task 2 (continued). Use a representative deflection basin to determine the stresses and strains. Compare the calculated stress and strain values of a grid section to a non-grid section. Use the results of the analysis to determine a structural number.

Prepare a technical summary of this investigation.

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Circumstances affecting project:
NTR

Tasks (from Work Plan) *add lines to table as needed*	**Planned % Complete**	**Actual % Complete**
4th Quarter (Oct-Dec 2016) *No tasking*	--------	--------
Project Requirements 1st Quarter (Jan-Mar) *Project work acceptance documents and project setup*	*100*	*100*
Task 1a 1st Quarter (Jan-Mar) *Prepare the FWD data at 6, 9, and 12 kip load levels, for back-calculation.*	*100*	*100%*
Task 1b 2nd Quarter (Apr-Jun) *Prepare the LWD data at 6, 8, 9, and 12 kip load levels, for back-calculation*	*100*	*100*
Task 2 3rd Quarter (Jul-Sep) *Conduct backcalculation on FWD and LWD data*	*100*	*100*
Task 2 4th Quarter (Oct-Dec) *Determine asphalt layer stresses and strains* *Prepare technical summary*	*100*	